## Lessons for cardiac regeneration and repair through development.

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**Public Summary:**
We review the state of the art in the field of cardiac regeneration, using what we have learned from how the heart normally forms.

**Scientific Abstract:**
Cell-based regenerative strategies have the potential to revolutionize the way cardiovascular injury is treated, but successful therapies will require a precise understanding of the mechanisms that dictate cell fate, survival and differentiation. Recent advances in the study of cardiac development hold promise for unlocking the keys for successful therapies. Using mouse models and embryonic stem cells, researchers are uncovering cardiac progenitor cells in both embryonic and adult contexts. Furthermore, the signaling molecules and transcriptional regulators that govern these cells and their behavior are being revealed. Here, we focus on the recent advances in these areas of cardiac developmental research and their impact on the expanding field of regenerative medicine.